

Political Cycles in a Developing Economy

Effect of Elections in Indian States

Stuti Khemani

Empirical results from India suggest that politicians exert greater effort in managing public works during election years. Surprisingly, there is no evidence of a populist spending spree to sway voters just before elections.



Summary findings

Khemani studies the effect of state legislative assembly elections on the policies of state governments in 14 major states of India, from 1960 to 1994. She identifies the effect of the timing of elections using an instrument for the electoral cycle that distinguishes between constitutionally scheduled elections and midterm polls. She contrasts two levers of policy manipulation—fiscal policy and public service delivery—to distinguish between alternative models of political cycles. The predictions of three models are tested:

- Populist cycles to woo uninformed and myopic voters.
- Signaling models with asymmetric information.
- A moral hazard model with high discounting by political agents.

The empirical results for fiscal policy show that election years have a negative effect on some commodity taxes, a positive effect on investment spending, but no effect on deficits, primarily because consumption spending is reduced. With regard to public service delivery, elections have a positive and large effect on road construction by state public works departments. Strikingly, the fiscal effects are much smaller than the effect on roads.

Khemani argues that the pattern of evidence is inconsistent with the predictions of models of voter myopia and asymmetric information. She explores an alternative moral hazard model in which the cycle is generated by high political discounting and career concerns persuade politicians to exert greater effort in election years on the management of public works.

This paper—a product of Public Economics, Development Research Group—is part of a larger effort in the group to understand the effect of political institutions on public policy. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC2-609, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. The author may be contacted at skhemani@worldbank.org. September 2000. (52 pages)

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POLITICAL CYCLES IN A DEVELOPING ECONOMY:
EFFECT OF ELECTIONS IN THE INDIAN STATES¹

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I. Introduction

In political economy models of electoral competition, the traditional intuition has been that opportunistic politicians will manipulate economic policy around election times for political gain. The hypothesized relationships between political and economic cycles have been widely studied for the OECD democracies.¹ However, our understanding of the effect of elections on economic policy in developing countries, where the poor and largely uneducated electorate is more likely to be susceptible to political manipulation, is limited or even non-existent. In fact, until recently most developing countries did not have stable democratic systems with regular elections, and therefore estimating the equilibrium effect of elections on economic policy in a cross-section of developing countries is a challenge. If an electoral cycle in public policy exists, the nature of political manipulation and its contrast with cycles in the OECD countries, may provide valuable insight into the issue of governance and accountability, a topic of increasing concern to development policy-makers. This paper tests for the existence of electoral cycles in sub-national governments within a large developing country with a stable democracy, and analyzes the motivation behind such cycles. Specifically, it studies the effect of state legislative assembly elections on the policies of state governments in 14 major states of India, over the period 1960-1994. Since elections occur over specified time intervals, they are relatively infrequent events and provide very few observations to econometricians that study national elections in only one country. However, analysis at the sub-national level within one country provides analogous advantages to cross-country studies, in that there are many more degrees of freedom.

India is a reasonable place to search for these electoral effects because it is a

¹ An excellent summary of the literature is provided by Alesina et al [1997].

developing economy with a history of popular participation in democratic elections at various levels of government. The country established a system of universal adult suffrage upon becoming a republic and drafting a constitution in 1950. Since the first elections in 1952, there have been 10 general elections for membership of the Lok Sabha, the lower house of Parliament in New Delhi, and over 300 state elections for the Vidhan Sabhas or state legislative assemblies, and for district and village councils. The average voter turnout in general elections has been about 56 per cent, and even greater in state elections, averaging to more than 60 per cent in the states in the sample [Butler, Lahiri and Roy, 1995]. Moreover, there is substantial variation across the Indian states in political and economic variables, over a period of time, which is conducive to properly identifying the relationship between political cycles and economic policies.

There are two distinct sets of political economy models to explain the economic effects of elections.² The first is pioneered by Nordhaus [1975] and Lindbeck [1976], and predicts business cycles where incumbents keep growth high and unemployment low just before an election. These opportunistic policies at election times lead to post-electoral recessions. A striking feature of these models is that they require voters to be especially myopic and uninformed, because only such voters would reward short-term gains before elections that are reversed just after elections. It is not entirely surprising, therefore, that little empirical support was found for the so-called “political business cycles”.³ The second set of models attempt to reconcile rational

²Here, the focus is on “opportunistic” political models where policymakers maximize their probability of re-election. For the US and OECD countries, there are also “partisan” models where different political parties represent the economic ideology of different constituencies. Specifically, left-wing parties prefer to keep unemployment low, while right-wing parties are more concerned with inflation [Hibbs, 1977; Alesina, 1987]. These partisan models are not relevant in the Indian context, because there are no clearly defined ideological coalitions based on specific combinations of economic policy.

³McCallum [1978] and Golden and Poterba [1980] find no significant evidence of a political business cycle in US

expectations on the part of voters with the Nordhaus-Lindbeck insight of opportunistic policy manipulation by incumbent politicians. The driving assumption in these “rational opportunistic” models of electoral cycles in public policy is the existence of temporary information asymmetries about the incumbent government’s level of competence. The empirical predictions of these models with regard to growth, inflation, monetary and fiscal policy are very different from the traditional Nordhaus-Lindbeck models. Persson and Tabellini [1990] predict that competent incumbents will follow pre-electoral expansionary policies that lead to temporarily higher inflation, but no post-electoral recession. Rogoff and Sibert [1988] and Rogoff [1990] predict short-term political budget cycles, where the incumbent government manipulates fiscal policy to signal competency in providing greater consumption. In all these models, rational voters deduce the level of competency, in equilibrium, by the degree of distortion in policies. Moreover, since only competent politicians distort policy in order to signal their “type” to the voters, the cycles are predicted to occur only occasionally and to be small in magnitude.

The empirical evidence for the OECD countries is consistent with the models of political budget cycles. Alesina et al [1997] find that in developed countries, fiscal policy is relatively loose in election years (with low taxes and high spending), and Alesina and Roubini [1992] find that inflation tends to increase after elections (probably because of pre-electoral expansionary policies). However, these electoral effects are small and often statistically insignificant. There is also limited evidence of budget cycles at the national level in the USA. Tufte [1978] finds evidence for political manipulation of fiscal instruments, particularly transfers, only in some presidential elections. Besley and Case [1994] examine economic policy effects of gubernatorial term limits in the US states. They find that “lame duck” terms are systematically unemployment and inflation. Alesina and Roubini (1992) find no evidence for OECD economies.

associated with higher taxes and higher spending, and interpret it as the result of lack of effort on the part of political agents that no longer care about re-election. However, they report no electoral cycle in taxes and spending within a term in office. Hence, the widely-held conclusion with regard to election cycles in developed countries is that they are small and occur infrequently, and are therefore consistent with rational-opportunistic stories.

In testing for the existence of electoral cycles in policy in the Indian states, a methodological innovation of this paper is to address the problem of potential endogeneity of elections with respect to policy variables. This is especially important in the case of developing countries where the scheduling of elections does not usually follow a strict, constitutionally established pattern. Hence, it is likely that the timing of elections is chosen strategically, that is, politicians may call for elections when economic conditions are particularly favorable. In addition, the coefficients on the election cycle may be subject to omitted variable bias if some unobservable political forces lead both to particular policy outcomes and to the occurrence of elections. In either case, the relation between elections and policy outcomes cannot be interpreted as the result of political manipulation in view of upcoming elections. Therefore, our empirical specification employs an instrument for the timing of elections to ensure that it is exogenous to policy choices. This instrument is constructed by distinguishing between constitutionally scheduled elections and midterm polls that are politically generated and unanticipated events.⁴ Various tests are undertaken to ensure as confidently as possible that the instrument for the electoral cycle is indeed exogenous to policy choices.

⁴ “Midterm” elections in this case are elections that take place in the middle of an incumbent’s constitutionally established five year term. It is not akin to midterm Congressional elections in the USA, that are scheduled and fully anticipated events.

This paper studies the effect of state elections in India on two separate policy instruments available to state governments: fiscal policies, namely taxes and spending, and public service delivery.⁵ We focus on the provision of a specific public service, namely road construction by state public works departments.⁶ The inclusion of public services is unusual in this literature, which has focussed on fiscal manipulation to test the predictions of the Nordhaus and Rogoff models. However, the contrast between the effect of elections on taxes and spending on the one hand, and public service delivery on the other, allows us to distinguish between alternate theories explaining the existence of cycles. The Nordhaus-style model of political cycles to woo uninformed and myopic voters predicts populist spending and tax cuts (leading to deficits) just before elections, followed by post-election contraction. The Rogoff model predicts tax cuts, and increases in government consumption spending at the expense of investment spending. However, these distortions are undertaken only by capable incumbents to signal their competency in delivering better service, and therefore the effects are small and are not expected to occur in every election. A third model of career concerns, developed in this paper, predicts that the effect of elections will be greatest on public service delivery as voters are able to extract greater effort from politicians in the election year. Fiscal manipulation, in this interpretation, may be small and relegated to selective tax and spending categories to extend political favors in exchange for campaign support.

The results may be summarized as follows: on the fiscal side, in the year leading

⁵Since this study focuses on sub-national governments, we do not expect macroeconomic conditions to be amenable to manipulation before elections, as state governments have no monetary authority. In fact, exploratory regressions on output and inflation at the state level showed no effect of the election cycle.

⁶The state governments are largely responsible for the following infrastructures: road construction, electric power, irrigation facilities and water supply. Ideally, the electoral effect should be estimated for all of these public services. But, for this paper data is only available on roads at the state level over a reasonable period of time.

to an election, incumbent state governments lower taxes, not on items of mass consumption but instead on a selective base consisting of manufacturers and producers; they increase spending on the capital account, but reduce spending on the current account which consists of various populist subsidies and salaries. As a result of the reduction in current spending, there is no significant effect of elections on the state deficit. We argue that this pattern of evidence is contrary to both the Nordhaus and Rogoff type models. The electoral effects on the composition of taxes and spending is not consistent with a story of populist politics to woo the mass of uninformed voters. The distinction between capital and current spending is directly counter to Rogoff's prediction. The additional implications of the Rogoff model for policies just after elections are also not upheld by the data.

On the public service delivery front, state governments significantly increase road construction in the year before elections, without corresponding increases in spending on roads. This election-year increase in the mileage of new roads, even after controlling for spending on roads, indicates that government management of public works improves in election years. The effect on roads is much larger in magnitude than the effect on the fiscal instruments. This is consistent with a moral hazard model of career concerns where politicians exert greater effort (less shirking) in the provision of public services in an election year. The cycle is generated by high discounting of the future by politicians in a common agency setting where they are responsive to several different constituencies.

In summary, the empirical evidence for electoral cycles in India clearly goes against the intuition that governments in developing countries will employ populist tax and spending policies before elections, in order to woo an uninformed and myopic electorate. The big effect of elections is on public service delivery, which requires a model different from the ones in the received literature that focus on fiscal policy manipu-

lation. There is some evidence for fiscal manoeuvring, but it appears to be limited to the extension of political patronage to specific groups, in exchange for support for electioneering.

The rest of the paper is organized as follows. The next section outlines the empirical strategy employed to identify the effect of elections on state economic policies. Section III describes the data and variables used in the analysis. Section IV presents the empirical evidence for the effect of elections on economic policies. Section V presents an alternate model of electoral cycles in public policy based on a moral hazard model of politics, where voters are able to extract greater effort from politicians in election years. Section VI concludes and indicates directions for future research.

II. The Empirical Strategy

The purpose of this paper is to identify the effect of the timing of elections on economic policies of state governments. In order to accomplish this, the electoral cycle must be exogenous to government policy choices. Exogeneity is a reasonable assumption because the electoral cycle is relatively fixed by constitutional arrangements. The first state assembly elections took place in 1952 along with the first general elections for the Lok Sabha (India's lower house of Parliament). Thereafter, elections were constitutionally scheduled to take place every five years. However, there have been several midterm elections for various state legislative assemblies due to shifting political alignments. In fact, of the 116 state elections over the period 1960-1994 in the sample states, 39 elections (i.e. 34 per cent) are midterm elections. This casts doubt on the identification assumption that the timing of elections is exogenous to government policy choices. The problem is addressed by identifying the effect of scheduled elections on economic policy and contrasting that with the correlation of

midterm elections and economic policies. Scheduled elections are defined as those elections that occur five years after the previous election, that is, following the constitutionally established pattern. Midterm elections are those that occur one, two, three or four years after the previous election, that is, before the completion of the five year constitutional term.⁷ It is important to make the distinction not only because midterm elections are potentially endogenous to policy choices but also because their exact timing is generally sudden and unanticipated, so it is not reasonable to expect incumbent governments to plan economic policies to influence election outcomes.

A. The Basic Strategy

The strategy employed to circumvent the endogeneity of midterm elections is to define an instrument for the actual electoral cycle that is plausibly exogenous to policy choices, and correlated with the actual cycle, and then estimate the reduced form effect of the instrument on policy choices. The instrumental electoral cycle follows a five-year cycle that begins anew after every midterm election. Election years in the instrument coincide exactly with scheduled elections, but midterm elections are treated as one, two, three or four years before a scheduled election. The year after a midterm election is always labelled as four years before a scheduled election. The timeline of the instrument is described pictorially in Figure I. This instrument, henceforth referred to as the electoral cycle, is the natural choice if the timing of midterm elections is viewed as the result of a shock whose effect is limited to the period of the shock.

The frequency of midterm elections in a state could be driven by some fixed,

⁷There are four occasions in the sample period where elections took place six years after the previous election. In the states of Andhra Pradesh, Assam, Karnataka and Maharashtra, elections took place in March 1972 and then in February 1978. This seems to be the effect of the Emergency imposed by the central government from June 1975 to March 1977. In these cases, the years 1975 (March 31st 1975 to March 31st 1976) and 1976 (March 31st 1976 to March 31st 1977) are both considered as one year before a scheduled election.

unobservable state characteristic, such as its socio-political make-up that is invariant over the sample period. In the sample of 14 states, there are 7 states where only one or two midterm elections occurred in the period 1960-1994, 4 states where three or four midterm elections happened, and 3 states (namely Kerala, Punjab and Uttar Pradesh) which experienced five to six midterm elections. Amongst the high frequency states, political volatility is a constant feature over the entire sample period; in Kerala owing to the politics of its communist parties; in Punjab and Uttar Pradesh due to religious and communal politics [Weiner and Field, 1974; Weiner, 1968]. In light of these fixed state characteristics, the specification to estimate the effect of the instrumental cycle should control for state-level fixed effects.

The existence of midterm elections in all states of India provides for variation in the dates of scheduled elections across states, which is necessary to distinguish the effect of elections from the effect of other shocks in the years in which they take place. Hence, the effect of elections can be estimated after controlling for year effects. The resulting empirical model to estimate the effect of the electoral cycle on government policies is the following:

$$(1) \quad Y_{it} = \alpha_i + \delta_t + \sum_{\tau=0}^4 E_{it}^{\tau} \beta_{\tau} + \varepsilon_{it}$$

where Y_{it} is an economic policy choice of the government of state i in year t ; E_{it}^{τ} , for $\tau = 0, \dots, 4$, is a set of indicator variables for the electoral cycle: $E_{it}^0 = 1$ if t is a scheduled election year in state i , $E_{it}^1 = 1$ if t is one year before a scheduled election in state i , and so on. The above specification is also estimated including some observable state characteristics X_{it} , including state domestic product (SDP), proportion of agriculture in SDP, and proportion of rural population as control variables. These are lagged four years because both policy variables and state characteristics may be subject to contemporaneous unobserved shocks. Equation (1) would therefore be modified as

follows:

$$(1a) \quad Y_{it} = \alpha_i + \delta_t + \sum_{\tau=0}^4 E_{it}^T \beta_\tau + X_{it} \lambda + \varepsilon_{it}$$

where X_{it} is a vector of characteristics of state i in year $t - 4$.

There is a problem with this empirical strategy to identify the policy effects of scheduled elections if the shocks generating midterm elections are in fact persistent. Persistence would imply that the “survivors” lasting the whole term of five years are systematically different from non-survivors, in which case the electoral effect could simply be attributed to the differences in policies adopted by survivors and non-survivors. This necessitates further scrutiny of the determinants of midterm state elections in India, and empirical tests to rule out the confounding effect of persistent shocks.

B. Causes of Midterm Elections

The direct cause of a midterm election is either shifting alignments within the ruling party, breakdown of coalition governments, or partisan pressure from the federal government. In order to enjoy majority power in the state assembly, a party needs to win two-thirds of the total seats in the assembly. In the sample, the number of midterm elections with coalitions is about equal to the number of elections where parties control the majority of the seats. This implies that midterm elections in the Indian states are not primarily driven by the collapse of tenuous coalitions.

The most remarkable feature of the midterm elections is the following. Of all the midterm elections an overwhelming 85 per cent have incumbents that are not affiliated with the party governing at the center. In contrast, only 25 per cent of scheduled elections have incumbents that are not affiliated with the center. This, of course, indicates that political volatility leading to mid-term polls is more likely in

states and in years when the dominant parties are not aligned with the centre. In view of the traditional dominance of a single party at the center, and the fact that the Indian federation is very centralized, it is quite likely that state midterm elections are fuelled by pressures from the central government. In fact, under Article 356 of the Constitution of India, the central government has the authority to recommend that a state government be removed, irrespective of whether it controls majority seats in the assembly, and Presidential Rule be imposed on the state if “a situation has arisen in which the government of the state cannot be carried on in accordance with the constitution” [Hardgrave, 1980, p. 58]. Typically, Presidential Rule lasts for a few months and is followed by midterm elections. About 45 per cent of the midterm elections in the sample followed the imposition of Presidential Rule in the state. Many political studies document that the imposition of Presidential Rule is driven by strikingly partisan motives.⁸ Political affiliation certainly qualifies as a “persistent shock”, since the electoral cycle could be the result of comparing systematically different policies adopted by aligned and non-aligned states, and not the result of strategic manipulation by governments facing elections. It is highly likely, in the Indian context, that the effect of political affiliation is accounted for simply through the state fixed effects, since “pro-center” or “anti-center” attitudes are relatively constant across the years in individual states, irrespective of the party currently controlling the legislative assembly. However, to test for the effect of political affiliation in a more general manner, we estimate the following model:

$$(2) \quad Y_{it} = \alpha_i + \delta_t + \sum_{\tau=0}^4 [E_{it}^{\tau} * AFF_{it}] \beta_{\tau} + \sum_{\tau=0}^4 [E_{it}^{\tau} * [1 - AFF_{it}]] \theta_{\tau} + AFF_{it} \gamma + \varepsilon_{it}$$

where AFF_{it} is an indicator of political affiliation that equals 1 when the incumbent in state i at time t is aligned with the party in power at the center at time t , and 0

⁸See Hardgrave [1980], Dua[1979], and Maheshwari [1977].

otherwise. Therefore, $E_{it}^\tau * AFF_{it}$ represents the electoral cycle where the incumbent is affiliated and $E_{it}^\tau * [1 - AFF_{it}]$ represents the cycle where the incumbent is not affiliated with the central party. The equality of the coefficients β_τ and θ_τ indicates that state electoral effects are independent of party affiliation. We also test that political affiliation does not confound electoral effects by estimating equation (1) and (1a) separately for states with $AFF_{it} = 0$, and states with $AFF_{it} = 1$. If an electoral cycle is found in both subsamples, then the story of strategic manipulation of economic policy to affect political outcomes is viable. However, the cycles could be different for the aligned and non-aligned samples if the two types of governments follow different political strategies.⁹

The effect of persistent unobservable shocks is tested by isolating the policy effects of those election cycles that do not follow midterm elections. An indicator variable that equals 1 if the previous election was a midterm election is included by itself and interacted with the electoral cycle. The specification is modified to:

$$(3) \quad Y_{it} = \alpha_i + \delta_t + \sum_{\tau=0}^4 [E_{it}^\tau * D_{it}] \beta_\tau + \sum_{\tau=0}^4 [E_{it}^\tau * [1 - D_{it}]] \theta_\tau + D_{it} \gamma + \varepsilon_{it}$$

where D_{it} is an indicator variable which equals 1 if the previous election was a midterm election and 0 if the previous election was a scheduled election. $E_{it}^\tau * D_{it}$ represents the electoral cycle that midterm elections and $E_{it}^\tau * [1 - D_{it}]$ represents the electoral cycle that follows scheduled elections. The test of the equality of the coefficients β_τ and θ_τ is the test that the midterm election shocks are not persistent, that is, the instrument identifies the effect of the electoral cycle on economic policies.

National elections could be viewed as temporary shocks that determine the timing of midterm elections. In fact, some midterm elections that occurred only one year

⁹ Affiliation with the central government could influence economic policies of state governments via intergovernmental grants and the sharing of taxes collected by the center and distributed to the states. A complementary study [Khemani, 1999] finds that grants-in-aid and share in central taxes are unaffected by state elections.

before the regular schedule coincide exactly with national elections to avoid duplicating the costs of electioneering by waiting to hold state elections in the immediately following year. In general, in politically volatile situations, cost considerations lead the Election Commission to coordinate the timing of midterm elections with that of national elections. In total, 56 per cent of state midterm elections coincided with general elections. To test the hypothesis that state economic policies respond to state elections and not to national elections, the same strategy described above is employed, that is, testing the equality of the election year coefficient when it coincides and does not coincide with a national election.

C. An Alternate Instrument for the Electoral Cycle

An alternate instrument could also be employed to test for the effect of elections on economic policies.¹⁰ This instrument treats the fifth year after every election, that is after both midterm and scheduled elections, as a scheduled election year, irrespective of whether an election actually occurred or not. Some elections in this instrument coincide exactly with actual scheduled elections, but there are many additional election years. In fact, this instrument has 115 scheduled elections of which only 77 coincide with actual scheduled elections in the sample period. The advantage of this instrument relative to the previous one described in Figure 1 is that it is more likely to be exogenous to economic policies, since it gives precedence to events that occurred further back in time and are therefore less likely to have persistent effects. The drawback, however, is that it is less correlated with the actual cycle, leading to the standard problem of weakly correlated instruments. This alternate instrument is used in all specifications to conduct a Hausman test of the exogeneity of the instrument described in Figure 1.

¹⁰I am grateful to Michael Kremer for first suggesting this alternate instrument.

III. The Data

The data set for this study is compiled from diverse sources for 14 major states of India over the period 1960-1994.¹¹ The political data on elections is taken from Butler, Lahiri and Roy [1995]. The public finance data on taxes and expenditure is available from the 1960-1994 volumes of the Reserve Bank of India Bulletin, a quarterly publication of the central bank of India with annual issues on the finances of state governments¹². Highways and roads data is compiled from the 1961-1995 volumes of the Basic Roads Statistics, an annual publication of the Ministry of Surface Transport of India and from various state Statistical Abstracts¹³. State demographic and economic characteristics, and a state-level price index to convert all variables into real terms, are available from an Indian data set put together at the Poverty and Human Resources Division, Development Research Group of the World Bank. A detailed description of these variables is available in Ozler et al. [1996].

¹¹The States Reorganization Act of 1956 divided the Indian federation into 14 states and 5 union territories that were administered by the Central government. In 1960, the state of Bombay was divided into Gujarat and Maharashtra. In 1966, the PEPSU (Patiala and E. Punjab States Union) was divided into its two main constituents, Haryana and Punjab. This study includes 13 states that were already established in 1960, namely Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The fourteenth state in 1960, Jammu and Kashmir, has been excluded because of the political uncertainties in the region that continue to this day. The state of Punjab is included after 1966, when it attained separate statehood. Haryana is not included because data for this state is not available across many explanatory variables.

Currently, India has 25 states because several union territories have attained statehood over the years, the most recent converts occurring as recently as 1991. Therefore, to maintain consistency in our analysis over a reasonable time period, we only include those states that existed since 1960 and 1966.

¹²I am grateful to Tim Besley of the London School of Economics for providing me with some of this data that had already been compiled in his research group.

¹³Data on state roads was taken from a district-level data set put together by Robert Evenson at Yale University using official Government of India sources. Evenson, Pray and Rosegrant [1994] provide a detailed description of this data set.

The following is a description of the policy instruments included in this analysis.

Fiscal Variables: State tax revenues are from agricultural income tax, taxes on property and capital transactions, and taxes on commodities and services¹⁴. Commodity tax revenues are by far the most important source of revenue for states, accounting for about 60 percent of total taxes (including share in federal taxes), and 88 percent of a state's own tax revenues. The chief components of commodity tax revenues are state sales taxes (accounting for about 50 percent of total commodity taxes), producer taxes on inter-state trade of goods (accounting for 10 percent), and state excise duties on the production of alcoholic liquors, opium, and other narcotics (accounting for 15 percent).

The expenditure of state governments on the current account is categorized into development and non-development expenditure. Development expenditure includes recurrent expenditure on the maintenance of social and economic services, including large agricultural subsidies. Non-development expenditure consists of spending on administrative and fiscal services, including compensation to government employees. Total spending on the current account is about 70 percent of total state government expenditure. Development spending on the capital account consists of investment spending for the creation of assets, again under the separate categories of social services and economic services. Development capital spending is only 12 percent of total expenditure. Table I summarizes the above discussion of state fiscal variables.

Road Network: The two main categories of roads in India are national highways and state roads. Funds for the development of national highways are provided by central government budgets on an annual basis, but the management is undertaken

¹⁴State governments in India do not collect personal income taxes. These are imposed and collected by the central government and the proceeds are shared with the states.

by state Public Works Departments (PWDs). Though national highways constitute only about 2 per cent of the total road network, they carry 40 per cent of the total road traffic [Infrastructure in India, CMIE, 1998]. Funds for state roads (consisting of state highways and district and village roads) come from the respective state government budgets. State highways are also managed by PWDs and carry about 30 per cent of the total traffic [CMIE, 1998]. The management of district and village roads is sometimes decentralized to local governing bodies within the state. Table II summarizes the sources of funding and management of different roads in India.

Data for this analysis is available for national highways and for total state roads, that is, state highways, district and village roads. Data on national highways is taken from the Basic Roads Statistics of India. There are several missing values because states fail to regularly update the information with the Ministry of Surface Transport. In addition, the publication of roads statistics was very irregular in the decade of the 1970s. Most of the missing values belong to that period. Data on state roads is available for 12 states¹⁵ and only upto 1987.

Table III presents means and standard deviations of the variables. Because of the diversity of sources, the time period covered varies across variables, so the number of observations is different for different variables. The empirical analysis tests the robustness of the evidence in the face of changing samples when variables are excluded or included in the analysis.

IV. Empirical Evidence

A. Effect of elections on tax revenues

The analysis of the effect of elections on taxes begins with a simple specification

¹⁵The excluded states are Assam and Kerala. Data is available compositely for the states of Punjab and Haryana.

estimating the effect of the election year indicator variable on total commodity tax revenues collected by state governments. Table IV(a) reports the separate regression results for scheduled and midterm election year indicators. Without controlling for any state characteristics, commodity taxes fall by about Rs. 3.5 per capita in a scheduled election year, but increase by almost Rs. 5 in a midterm poll. However, the coefficients are not statistically significant. When controls for state characteristics such as state income, share of agriculture and proportion of rural population are included, the point estimate of the coefficient on scheduled elections does not change much, but it is now significant below the 5 per cent level. The contrast in the effect of scheduled and midterm elections confirms the need to distinguish between the two in order to identify a causal effect of elections on taxes. Predictably, when states are richer and have a larger urban and manufacturing sector, commodity tax revenues are higher.

The two columns of Table IV(b) present regression estimates of equations (1) and (1a) to determine the effect of the whole election cycle on commodity taxes, using the instrument defined in Section III. Commodity taxes are significantly lower in election years compared to other years in the cycle. Figure IIa plots the coefficients on the election cycle (with the election year coefficient set equal to 0). It indicates that taxes are lower as the time of election comes closer. Commodity taxes in election years are about Rs 3.5 lower per capita than the average of the other four years. This reduction is about 6 per cent of the average per capita commodity tax revenues in the sample states.

Equations (2) and (3) were estimated to test whether the electoral cycle in taxes presented in Tables IV(a) and IV(b) are properly identified. Including political affiliation and controlling for years following midterm elections does not affect the electoral cycle in taxes. There is also no difference in the effect of elections that are coincident

and not coincident with general elections. The alternate instrument for the timing of elections does not yield significant results. However, the Hausman test indicates that it is consistent with the results of the reported instrument.

There is no significant effect of the electoral cycle on non-tax revenues, such as revenues from interest receipts, dividends and profits, general services, and social, economic and fiscal services. There is also no evidence of an electoral cycle in property taxes. This lack of evidence further supports the hypothesis that commodity tax cuts are driven by political motives rather than by some unobservable shocks that affect all variables, since it is difficult to explain why these shocks only affect commodity taxes and not property taxes and interests and dividends.

State sales tax on items of mass consumption is by far the largest contributing component of the category of commodity taxes, and given the regressive nature of these taxes, it would be natural to assume that the fall in taxes is driven by rate-cuts on products that are widely consumed by low and middle income groups. But, an analysis of the effect of elections on the composition of commodity taxes tells a different story— there is no significant effect of elections on state sales tax, but producer taxes on inter-state trade of goods, and state excise duties on the production of alcoholic liquors, opium, and other narcotics, fall significantly in election years. The results are reported in Table IV(c). After state sales tax, these producer taxes are the main source of state commodity tax revenue.

The tax base for inter-state trade of goods and excise duty on alcohol is, by definition, narrow. The election-year effects on these categories are substantial: tax collected from the inter-state trade of goods falls by Re1 per capita, which is 18 per cent of the average per capita trade tax collection; excise tax collections fall by Rs 1.4 per capita, which is 15 per cent of the average per capita excise in the sample. This implies substantial tax breaks for a small group of the population, a result that

immediately points towards a story of political purchase of campaign support.¹⁶

If these tax cuts are the result of signalling by competent governments, then Rogoff [1990] predicts that taxes should be lower on average also in the year immediately following elections. However, the coefficients on the non-election years of the cycle are statistically indistinguishable from each other.

B. Effect of elections on expenditure

Table V(a) reports the effect of scheduled and midterm election years on capital outlays for asset creation. Capital spending increases in a scheduled election year, but falls in a midterm election. Spending increases by about Rs 2.5 in scheduled election years, although the coefficient is only significant at the 10 per cent level. On the other hand, capital spending falls significantly in midterm elections.

Table V(b) presents the electoral cycle in capital spending. Figure IIb plots the coefficients on the different years of the electoral cycle, while constraining the election cycle coefficient to equal 0. The four coefficients on the lags of the electoral cycle, reported in column (2), are statistically indistinguishable from each other. Again, the prediction of a Rogoff-style signalling model that spending should be relatively high just after elections is not satisfied. Capital spending in the election year increases by 9 per cent of the average spending in the states in the sample period. The electoral cycle in capital spending is unaffected by the political affiliation of incumbents and holds even after the incidence of a midterm election. Employing the alternate instrument to test the effect of elections on capital spending yields the same conclusions.

¹⁶An excise tax cut on alcohol could be interpreted as a “populist” measure. However, it may be argued that it is still too selective a tax break (given that general sales taxes are unaffected) to fit a story of widespread voter myopia that encourages short-term spending sprees before elections.

The scheduled election year has a negative effect on spending on the current account, but the effect is significant only when other state characteristics are included. The results are reported in Table V(c). The point estimate, with state controls, indicates that current spending falls by about Rs 5 per capita, which is almost 3 per cent of the average level in the sample. Therefore, it appears that the composition of spending changes in elections, in favor of spending on the capital account. In contrast, Columns (3) and (4) of Table V(c) show that midterm elections are associated with higher spending on the current account, and as mentioned earlier, lower spending on the capital account.

The election-year fall in current account spending is somewhat counter-intuitive because this is the category which includes various subsidies (on food and agricultural inputs), and salaries to civil servants and government employees. Hence, if electoral cycles are driven by voter myopia, this is the type of spending which would be expected to increase. In fact, a separate regression on food subsidies shows that it actually falls significantly in election years.¹⁷ Capital spending, on the other hand, is widely regarded as a more convenient tool for political patronage of specific groups or individuals, since new construction contracts can be given selectively.

Why does spending not increase across the board in a scheduled election year? In order for that to happen, the budget constraint would require that government receipts increase in order to fund the rising expenditure. Since elections are accompanied by tax cuts, one source for increasing state funds are capital receipts, which could imply an increase in the budget deficit. Such a strategy is predicted by Rogoff and Sibert [1988]. However, in the Indian political budget cycle, current spending

¹⁷The negative coefficient on the election year for food subsidies is not because they are higher immediately after elections, that is, due to an election-year promise to increase subsidies after being elected to power. The results are available from the author upon request.

tends to decrease while the budget deficit is unaffected. The next section describes the effect on the state budget deficit.

C. Electoral policy manipulation and budget deficits

Table VI reports the effect of elections on the growth of public debt held by the state government, consisting of market borrowings and loans from the central government. The point estimate indicates that state debt increases in the election year, but it is not statistically significant. The 95 percent confidence interval indicates that the election year effect on state debt could range between an increase of Rs 8 or a fall of Rs 3 per capita. Therefore, it is clear that state elections do not have a significant and systematic effect on the budget deficit.¹⁸

The reduction in taxes and increase in capital spending in election years appears to be financed largely by reductions in current spending. The 95 percent confidence interval on current spending (when the point estimate is not statistically significant) indicates that spending in the election year, in comparison to other years, ranges between a fall of Rs 9.5 per capita and a rise of Rs 2 per capita.

D. Correlation with midterm elections

It is striking to note that if a significant correlation of midterm elections with the policy variables exists, then it is exactly opposite in sign to the effect of scheduled

¹⁸The lack of effect of elections on state debt in India may not be surprising because there are legal restrictions on state governments' access to credit markets. However, states have often resorted to unauthorized overdrafts with the central bank, that are eventually transformed to loans from the central government. Therefore, the finding here may still reflect the outcome of active choices by state governments, since states have had the ability to stretch the rules associated with borrowing from the central government.

elections on economic policies. This highlights the importance of predicating models of electoral cycles on exogenous timing of elections. Midterm elections are associated with significantly higher taxes, lower capital spending, and higher current spending. This correlation cannot be interpreted as a causal relation since midterm elections are potentially endogenous to policy choices.

The correlation between midterm elections and fiscal policy could be driven by some unobserved variable, which could be interpreted as political volatility, that affects both policy variables and the incidence of a midterm election. In this interpretation, greater instability may lead to higher taxes, and higher current spending, but lower outlays for asset creation, perhaps because politically weak governments are unable to maintain fiscal discipline. The budgetary procedures for passing a current versus a capital spending bill are no different. Hence, it is not clear why weak governments are able to increase current spending but actually reduce capital spending. On the other hand, the correlation could be driven by particularly unpopular policies, that get reflected in high taxes and lower investment spending, and lead to the calling of a midterm election.

E. Effect of elections on roads

The effect of elections on roads is reported in Table VII. The first two columns present the effect of elections on national highways, and the next three columns report the equations for state roads. The coefficients on the electoral cycle for roads are presented in Figure III.

National Highways: The election year has a significant positive effect on the completion of new roads in the network of national highways in a state. Including only the indicator variable for the election year adequately captures the cycle because the null hypothesis of equality between the coefficients on the lag years cannot be re-

jected. The electoral cycle in national highways is unaffected by the indicator variable for years following midterm elections. The effect of political affiliation is considered below.

The length of new roads added to national highways increases by about 47 kilometers (or 29 miles) in an election year. This figure is one and a half times the average length of new roads added in a year to the national highways network of states. This is a remarkably large effect, and therefore surprising, since it's unclear how governments are able to manipulate a long-term investment project such as road construction. It is highly possible that the significant jump in highways in an election year need not be due to projects started and completed within the span of the election year. The election year effect could be driven by the rapid completion of existing projects in the face of imminent elections. If that is the case, then elections could be interpreted as enhancing the efficiency of government management.

On the other hand, the government could be pumping money for "ribbon-cutting" publicity, to start and finish new projects within an election year. As noted earlier, the funds for the development of national highways are provided by the central government, but the actual construction and management is undertaken by the state PWDs. Data on central government financing of roads is not available for this study, so it is not possible to control for the actual spending on national highways. However, if the electoral surge in the length of new national highways is driven by increasing transfer of funds from the centre to the states, then the electoral effect should only be relevant for those states where the incumbents are politically aligned with the party in power at the center. It would be unreasonable to expect the central government to increase the supply of funds to non-affiliated incumbents in a critical election year. Hence, in the context of national highways, testing for the effect of political affiliation becomes a test of the effect of elections after controlling for spending on roads. If the

increase in highway construction is not driven by sudden increases in funds, then the electoral effect should be identical across affiliated and non-affiliated states, since all the financing for national highways is undertaken by central governments.

In Table VII(a), equation (2) is estimated for national highways. We are unable to reject the equality of the coefficients on the election cycle when the incumbent is aligned and when not-aligned with the center. Recalling that the data on national highways suffers from several missing values, the robustness of the election result is tested against any sample selection bias. The electoral cycle is estimated separately for the two samples where the state government is affiliated and not affiliated with the center. The positive effect of elections on national highways holds in both samples, but now only at the 10 per cent level of significance for affiliated states and insignificantly for non-affiliated states. This statistical discrepancy is probably driven by the substantially fewer observations on national highways in non-affiliated states. Thus, both affiliated and non-affiliated state governments increase road construction on national highways in an election year. The election year coefficient is smaller for the sample of non-affiliated states, a result that is consistent with the negative coefficient on the affiliation indicator in Table VIIa: non-affiliated states tend to have lower mileage of national highways than affiliated states in all years, irrespective of the electoral cycle.

The evidence shows that even though funds for national highways are controlled by central governments, incumbents in state governments are able to manipulate the management of state PWDs to influence road construction in an election year.¹⁹

¹⁹Some anecdotal evidence on this issue might be helpful at this point. I discussed the possibility and nature of an electoral effect on national highways with a senior engineer in the PWD Roads Department of the Government of West Bengal. In his view, the length of new roads is greater in an election year because of the pressure exerted by ministers of state to complete existing projects rapidly. He claimed that

The equations for national highways are also estimated after controlling for state budgetary spending on roads, despite the official rule that state budgets do not contribute to national highways. As expected, the coefficient on state road spending is insignificant.

State Roads: Columns (3) through (5) of Table VII present the estimates for the electoral cycle in state roads. The electoral cycle in state roads (state highways and district and village roads) is not as significant as in national highways. Election year road construction in state roads is significantly greater than four years and two years before elections, but no different from road construction one and three years before elections. The size of the effect is rather large. New state roads increase by 925 kilometers (or 575 miles) compared to the average of other years, which is 56 per cent of the average annual growth in state roads. Perhaps the statistical insignificance is due to the fact that the dependent variable lumps together different types of roads with different strategic values. Elections may only be affecting state highways, so the effect is confounded by the “noise” added through district and village roads.

Data on spending on roads and bridges in state government budgets is available since 1972, hence it is possible to control for state spending on roads in the equation for the construction of new state roads. But, since the data on state roads is only available upto 1987, including roads expenditure reduces the sample size by 40 per cent. The regression results are reported in column (5) of Table VII. Expenditure on roads has a positive coefficient but is not statistically significant. Road construction in the election year is higher than construction in the next year only at the 10 per cent level of significance. The lack of significance could be as much due to the loss of observations as due to the inclusion of the spending variable.

since road development plans are very long-term plans, sudden injections of extra funds to build significantly more roads in an election year did not seem feasible.

A separate regression of state spending on roads and bridges finds that the estimate of the effect of elections on spending is highly insignificant. Putting together the two pictures of increases in road construction without corresponding increases in spending could suggest that the election year effect is driven by greater efficiency in government management.²⁰

Electoral effect on state roads for big versus small states: This section explores whether the electoral effect on roads is different across big and small states, as measured by the geographic area of the states. The underlying assumption is that the internal state roads network has greater importance for bigger states in order to link all centers of commercial significance within its boundaries, with each other and with the national highways. On the other hand, national highways are relatively more important for smaller states because they may suffice to link major nodes of communication within the state.

The five states with the largest area are, in order, Madhya Pradesh, Rajasthan, Maharashtra, Uttar Pradesh, and Andhra Pradesh. An indicator variable is employed for state size equalling 1 for the five largest states and 0 for the remaining nine smaller states. Table VIII reports the results for the differential electoral effect on state roads for the big versus the smaller states. The results show that state roads increase significantly and substantially in election years for the big states. The difference between the electoral effect for big and small states is significant at the 10 per cent level

²⁰A concern is often raised that governments over-invest in new construction at the expense of maintaining existing assets. Therefore, it could be that in election years funds are diverted from road maintenance to new road construction. However, regressions on disaggregated data on current and capital spending on roads did not show a negative effect of elections on maintenance spending.

F. Interaction of Electoral Effect with Local Conditions

The size of the electoral cycle may vary with certain local conditions, such as education, income inequality, or poverty amongst voters. If the cycle is driven by voter myopia, we may expect larger election-year effects when there is greater illiteracy, inequality, or poverty in the population. However, the interaction of the electoral effect with these local conditions was never significant.

We also tested whether the cycle was different in states that have more stagnant economies, and poorer human conditions, as measured by education, caste violence, position of women etcetera. Again, no evidence was found for a significant difference. There is also no difference between northern and southern states, and between big and small states (except with regard to the cycle in roads).

V. Moral Hazard and Career Concerns: An alternate model for electoral cycles

This section develops a theoretical framework that could explain the empirical results described above. First, the shortcomings of existing models of electoral cycles in explaining the Indian cycle are summarized. Then, a moral hazard model of career concerns, with high political uncertainty, is presented as an alternative explanation for the empirical evidence.

The evidence is contrary to the predictions of both a Nordhaus-style model of myopic voters and the Rogoff-style model of signalling under asymmetric information. First, the effect of elections on the composition of state government spending is the opposite of that predicted by both models. In the Indian states, capital spending increases and consumption spending decreases in an election year.²¹ Therefore, there

²¹ This difference could still be reconciled by making different assumptions about visibility and voter preferences.

is no evidence for a political spending spree that increases state deficits. Second, the election effect on taxes is restricted to a very particular subset, and does not appear to be a policy manipulation intended to benefit the mass of the voters. Third, the effect of elections on road construction is very large, and exists even after controlling for spending. It does not seem reasonable that short-term competency shocks should generate such substantial cycles in public service delivery.

This paper argues that the policy cycle in the Indian states seems most consistent with moral hazard models of common agency, which recognize that politicians have obligations towards several groups of conflicting interests. One implication is that politicians develop a short time horizon because of the political uncertainty associated with special interest politics. This idea is particularly relevant for a parliamentary system of government, such as that which exists in the Indian states. The primary architects of state government policy are the chief ministers, who are leaders of the majority party in the state legislature. These leaders face the risk of losing control over the party, and be replaced by other individuals, even in the middle of the party's elected term in office. In fact, in 60 percent of the five-year terms in the Indian sample, the chief minister of a state changed (sometimes more than once) during the majority party's term in office. Manor [1995] describes the extraordinary political pressures on Indian chief ministers to retain control over their party, because of constant political intrigue between different constituencies. If a politician associates each period with an exogenous probability p of losing power, then the effective discount rate is $\delta = \beta * [1 - p]$, where β is a standard discount parameter that may be close to one, but $[1 - p]$ may be very small if losing political control of the party is highly probable. The interpretation is that politicians spend the first periods in office working towards cementing their control over the party and their support from influential groups, and enact policies to woo voters only when elections are around the corner and reelection is actually

meaningful to them.

If the future is highly discounted by politicians, then a career concerns model along the lines developed by Holmstrom [1982] yields a short term electoral cycle in economic policy. The basic model may be outlined as follows. There are three periods, the pre-election period, the election period and the post election period. After observing output in the first two periods, the electorate votes at the end of period 2. In period 3, the output is consumed and the world ends. Risk neutral voters care about the output or performance variable that is denoted by y_t , and depends on the incumbent politician's ability θ (time invariant) and her effort e_t . The production technology is linear and stochastic, given by:

$$y_t = \theta + e_t + \varepsilon_t$$

where the ε_t are drawn independently from a normal distribution with mean 0 and variance σ_ε^2 . Both politicians and voters are uncertain about the value of θ , but have beliefs about its distribution in the population. In particular, at the beginning of period 1, θ is assumed to be distributed normally with mean m_1 and variance σ_1^2 . While output is observable, effort and the stochastic term are not.

The politician is also assumed to be risk neutral. The politician gets some fixed rents x in every year of office, irrespective of the level of output, and has a cost of effort function given by $c[\cdot]$. Therefore, the politician's utility function is:

$$U_p = [x - c[e_1]] + \delta[x - c[e_2]] + \delta^2 x * \Pr[reelection]$$

where δ is the discount rate. Effort in the third period is 0 because the game ends in that period. In order to decide on the optimal levels of e_1 and e_2 , the politicians need to calculate their effect on the probability of reelection. They know that voters will use the observations on y_1 and y_2 to update their beliefs about the underlying

ability θ . It follows from the assumption of normality that expected ability of the incumbent in the post-election period, that is after observing y_1 and y_2 , is given by:

$$m_3 = E[\theta|y_1, y_2] = [\sigma_\varepsilon^2[m_1] + \sigma_1^2[y_1 + y_2]]/[\sigma_1^2 + \sigma_\varepsilon^2]$$

Since there is no way of updating beliefs about the opposition, the expected ability of the opposition is given by m_1 , that is, the expected value of θ in the first period. Hence, politicians would like to manipulate effort so that $m_3 > m_1$, which is satisfied if $[y_1 + y_2] > \gamma^*[m_1, \sigma_1^2, \sigma_\varepsilon^2]$, where γ^* is a critical value that depends on m_1, σ_1^2 and σ_ε^2 .

Politicians decide on the optimal levels of effort by maximizing

$$E[U_p] = E[x - c[e_1] + \delta x - \delta * c[e_2[y_1]] + \delta^2 x * [1 - F[\gamma^*]]]$$

where $F[\cdot]$ is the cumulative distribution function of the random variable $[y_1 + y_2]$. If δ is small enough, that is, the future is heavily discounted, then there exists an equilibrium where $e_2^* > e_1^*$, that is, politicians exert greater effort in the election year.

However, voters are also equipped to solve the above optimization problem of politicians and can, in equilibrium, calculate the optimal effort functions e_1^* and e_2^* . Rational voters decide the reelection rule based on their inference about the politician's choice of e_1^* and e_2^* .

Upon observing y_1 and y_2 , voters update their beliefs about the expected value of the incumbent's θ , but only after accounting for their belief about the politician's optimal choice of effort, e_t^* . In equilibrium, voters observe:

$$z_t = y_t - e_t^* = \theta + \varepsilon_t$$

and reelect the incumbent if and only if $E[\theta|z_1, z_2] > m_1$, where m_1 is the expected value of the opposition's ability. As before, it follows from the assumption of normality that

$$E[\theta|z_1, z_2] = [\sigma_\varepsilon^2[m_1] + \sigma_1^2[z_1 + z_2]]/[\sigma_1^2 + \sigma_\varepsilon^2]$$

Therefore, voters reelect the incumbent if and only if $[z_1 + z_2] > \gamma^*[m_1, \sigma_1^2, \sigma_\epsilon^2]$.

Voters are not fooled, in equilibrium, by the politician's manipulations, but the latter is trapped into providing greater effort in the election period because not doing so would bias the process of inference against her. There is no Nash equilibrium with politicians exerting no effort. If politicians exert no effort then the best response of voters is to re-elect if $[y_1 + y_2] > \gamma^*[m_1, \sigma_1^2, \sigma_\epsilon^2]$. However, then it is in the interest of politicians to deviate and choose e_1^* and e_2^* to maximize $E[U_p]$. The voters' best response now is to re-elect if $[z_1 + z_2] > \gamma^*[m_1, \sigma_1^2, \sigma_\epsilon^2]$. An appealing feature of the equilibrium is that voters may not reward an incumbent for greater effort in the election year, but they may be more likely to punish the incumbent if there is no increase in effort. Hence, voters are able to extract greater effort in the election year from incumbents seeking re-election.

The above model shows that cycles can be generated by high political discounting of the future, even when there are no information asymmetries, and voters are rational, in that they use all available information to make deductions about underlying ability. However, there can be several equilibrium strategies of policy manipulation depending on the production technology for y , which would determine the extent to which voters can make inferences about ability by observing output. In multiple-tasks models of career concerns [Tirole, 1994], effort is exerted in those tasks which are relatively more informative about underlying ability. Therefore, this model can make a distinction between the relative importance of elections for public service delivery versus fiscal policy. Voters may have more to learn from observing government management of public works, while tax cuts and subsidy spending may be relatively uninformative about underlying ability.

In fact, the evidence for fiscal policy manipulation is of relatively smaller magnitude. Moreover, the tax breaks are targeted to specific groups of producers, and cap-

ital spending may be allocated selectively to preferred construction contracts. Both of these fiscal effects point in the direction of political favors extended in exchange for campaign support. The models of electoral competition with special interests [Grossman and Helpman, 1996; Bardhan and Mookherjee, 1999] do not lend themselves to electoral cycles, even in a dynamic setting, because it is assumed that contracts between politicians and organized groups are credible and binding. In fact, in developed economies this is a reasonable assumption given the nature of the institutional and legal system. However, when contracts are difficult to enforce, politicians may use some policy instruments only in the election year to purchase the required support for their campaign.

The career concerns model may be particularly useful in explaining the distinction between electoral cycles in developed and developing countries. Firstly, in poorer countries, there may be greater conflict and wasteful bargaining between different interest groups, which worsens the common agency problem and leads to a higher discount rate for politicians. Secondly, management inefficiencies may be particularly rampant in public works in developing countries, given the lower quality of other institutional mechanisms to monitor performance, so that even some amount of political pressure to improve performance may produce dramatic results, without having to significantly increase spending. The result of both these forces is substantial electoral cycles in public works in developing countries, a phenomena not observed for the developed countries.

VI. Conclusion

This paper finds evidence for political cycles in public policy in the Indian states: taxes on producers are lower, public investment spending is higher, and road construction

by public works departments is higher in election years. However, electoral fiscal manipulations have no significant effect on state budget deficits, primarily because spending on the current account falls. This pattern is somewhat counter-intuitive because it does not consist of a populist spending spree to sway poor and uneducated voters; nor can it be explained within the framework of existing models of political budget cycles.

A striking feature of the results is that the effect of elections on road construction is of much greater magnitude than the effect on fiscal variables. The substantial increases in new roads in election years, even after controlling for spending, implies that government management of public works improves. This is consistent with a moral hazard model of career concerns where politicians exert greater effort in public service delivery to influence voters' inference about their ability. The election cycle is generated by high discounting of the future in an environment of political uncertainties, so that it is only in the election year that incentives to woo the majority of voters is the greatest. Further research on the effect of elections on other publicly provided services would be valuable to test this career concerns model, since here evidence is only presented for road construction.

The story presented in this paper accounts for the difference between political cycles in developed and developing countries on the basis of two primary arguments: one, in developing countries political upheavals may be more frequent, and interest group politics more fractious, leading to higher discount rates for politicians; and two, poor institutional monitoring of performance in public works in developing countries may provide considerable room for improvement under political pressure. It is striking that the empirical evidence is not consistent with the more intuitive explanation that poor and uneducated voters in developing countries are more myopic and hence more susceptible to short-term political manipulation.

Another explanation of the difference in political cycles could arise from comparing national cycles to sub-national cycles. The literature thus far has focussed on the effect of presidential and national parliamentary elections, where it may be easier to manipulate fiscal and monetary policy to affect voter perceptions. However, at sub-national levels, voters may evaluate candidates on more micro indicators of performance, and a moral hazard model of government accountability may be more appropriate. Further research on the contrast of election strategies and voting behavior in national versus local elections would provide insights to the question of political accountability at different levels of government.

References

- [1] Alesina, A. [1987], “Macroeconomic Policy in a Two-Party System as a Repeated Game”, *Quarterly Journal of Economics*, 102, 651-678.
- [2] Alesina, A. and Roubini, N. [1992], “Political Cycles in OECD Economies”, *Review of Economic Studies*, 59, 663-688.
- [3] Alesina, A., Roubini, N., and Cohen, G. D. [1997], *Political Cycles and the Macroeconomy*, MIT Press.
- [4] Basic Roads Statistics of India, Ministry of Surface Transport, Government of India, 1960-1995.
- [5] Bardhan, P. and Mookherjee, D. [1999] “Relative Capture of Local and Central Governments”, Working paper.
- [6] Besley, T. and Case, A. [1995], “Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits”, *Quarterly Journal of Economics*, 110[3], 769-798.

- [7] Butler, D., Lahiri, A., and Roy, P. [1995], *India Decides: Elections 1952-1995*, New Delhi.
- [8] Dua, B. D. [1979], "Presidential Rule in India: A Study in Crisis Politics", *Asian Survey*, 19, 611-628.
- [9] Evenson, R. E., Pray, C. E. and Rosegrant, M. W. [1994], "Sources of Agricultural Productivity Growth in India", IFPRI Research Report.
- [10] Golden, D. G. and Poterba, J. M. [1980], "The Price of Popularity: The Political Business Cycle Re-examined", *American Journal of Political Science*, 24, 696-714.
- [11] Grossman, G. and Helpman, E. [1996] "Electoral Competition and Special Interest Politics", *Review of Economic Studies*, 63:265-286.
- [12] Hardgrave, R. L. [1980], *India: Government and Politics in a Developing Nation*, Harcourt Brace Jovanovich, Inc.
- [13] Holmstrom, B. [1982], "Managerial Incentive Problems: A Dynamic Perspective", in *Essays in Economics and Management in Honor of Lars Wahlbeck*, Swedish School of Economics, Helsinki.
- [14] Hibbs, D. [1977], "Political Parties and Macroeconomic Policy", *The American Political Science Review*, 7, 1467-1487.
- [15] *Infrastructure in India* [1998], Centre for Monitoring the Indian Economy [CMIE].
- [16] Khemani, S. [1999], "Partisan Politics and Intergovernmental Transfers in India", mimeo, The World Bank.
- [17] Lindbeck, A. [1976], "Stabilization Policies in Open Economies with Endogenous Politicians", *American Economic Review Papers and Proceedings*, 1-19.

- [18] Maheshwari, S. R. [1977], *President's Rule in India*, Delhi: Macmillan.
- [19] Manor, J. [1995], "India's Chief Ministers and the Problem of Governability", in P. Oldenburg [ed.], *India Briefing: Staying the Course*, M.E. Sharpe, London.
- [20] McCallum, B. [1978], "The Political Business Cycle: An Empirical Test", *Southern Economic Journal*, 44, 504-515.
- [21] Mundle, S. and Rao, M. G. [1992], "Issues in Fiscal Policy," in B. Jalan [ed.], *The Indian Economy: Problems and Prospects*, Penguin Books.
- [22] Nordhaus, W. D. [1975], "The Political Business Cycle", *Review of Economic Studies*, 42, 169-190.
- [23] Ozler, B., Datt, G. and Ravallion, M. [1996], "A Database on Poverty and Growth in India", Mimeo, Policy Research Department, The World Bank.
- [24] Persson, T. and Tabellini, G. [1990], *Macroeconomic Policy, Credibility, and Politics*, Chur, Switzerland: Harwood Academic Publishers
- [25] Reserve Bank of India Bulletin, Reserve Bank of India, 1960-1995.
- [26] Rogoff, K. [1990], "Equilibrium Political Budget Cycles", *The American Economic Review*, 80[1], 21-36.
- [27] Rogoff, K. and Sibert, A. [1988], "Elections and Macroeconomic Policy Cycles", *Review of Economic Studies*, 55, 1-16.
- [28] Tirole, J. [1994], "The Internal Organization of Government," *Oxford Economic Papers*, 46, 1-29.
- [29] Tufte, E. R. [1978], *Political Control of the Economy*, Princeton: Princeton University Press.

- [30] Weiner, M. ed. [1968], State Politics in India, Princeton: Princeton University Press.
- [31] Weiner, M, and Field, J. O. eds. [1974], Studies in Electoral Politics in The Indian States, Vol I-IV, MIT Press.

Table I	
State Government Taxes and Spending	
Fiscal Variable	Proportion of Total
Commodity Taxes	88% ^a
Sales tax	50% ^b
Excise tax	15% ^b
Trade tax	10% ^b
Current Spending [includes subsidies and salaries]	70% ^c
Development Capital Spending [includes investment spending]	12% ^c
a. Proportion of total own tax revenue b. Proportion of commodity tax revenue c. Proportion of total spending	

Table II		
Roads: Management and Funding		
	National Highways	State Roads
Management	State PWDs	State PWDs District & Village Councils
Funding	Central Budget	State Budget

Table III			
Summary Statistics ^a			
Variable	Obs	Mean	Std. Dev.
Scheduled Election	513	0.16	0.36
Midterm Election	513	0.08	0.27
Political Affiliation ^b	513	0.39	0.49
Growth in National Highways ^c	318	19.5	98.4
Growth in State Roads ^c	330	1686.3	3583.8
Commodity Taxes	456	58.1	40.4
Sales Taxes	445	28.3	21.2
Excise Taxes	456	9.3	10.8
Trade Taxes	443	6.1	6.3
Development Spending [current]	456	95.9	57.4
Non-development Spending	456	46.3	20.8
Total Current Spending	456	144.5	76.1
Development Spending [capital]	469	23.4	11.7
State Debt	470	48.9	26.7
State Domestic Product	464	1101.6	576.7
Share of Agriculture in SDP	464	0.43	0.11
Total Population ^d	513	41626	25195
Proportion of Rural Population	483	0.79	0.08
<p>a. Taxes, spending and SDP variables are in percapita 1973 rupees</p> <p>b. Indicator variable equals 1 if incumbent is affiliated with central govt.</p> <p>c. In kilometers</p> <p>d. In thousands</p>			

Table IV(a)				
Effect of Elections on Commodity Taxes ^a				
[t-statistics in parenthesis]				
	[1]	[2]	[3]	[4]
Independent Variables:				
Scheduled election year	-3.42	-3.94		
	[-1.37]	[-2.27]		
Midterm Election Year			4.97	2.20
			[1.73]	[0.88]
State domestic product [SDP]		0.05		0.05
		[8.84]		[8.76]
Share of agriculture in SDP		-57.18		-55.16
		[-2.89]		[-2.73]
Proportion of rural population		-960.2		-962.8
		[-10.5]		[-10.4]
Number of Observations	456	394	456	394
R-sq	0.87	0.94	0.87	0.94
a. All taxes and SDP are in 1973 rupees per capita. Regressions include year and state effects, and are reported with robust standard errors.				

Table IV(b)		
Effect of Elections on Commodity Taxes ^a		
[t-statistics in parenthesis]		
	[1]	[2]
Independent Variables:		
1 yr before Elections	1.10 [0.32]	2.47 [1.07]
2 yrs before Elections	2.03 [0.70]	2.64 [1.28]
3 yrs before Elections	4.20 [1.35]	6.89 [2.88]
4 yrs before Elections	3.86 [1.24]	4.09 [1.83]
State domestic product [SDP]		0.05 [8.82]
Share of agriculture in SDP		-60.86 [-3.22]
Proportion of rural population		-948.0 [-10.4]
Number of Observations	456	394
R-sq	0.87	0.94
a. All taxes and SDP are in 1973 rupees per capita.		
Regressions include year and state effects, and are reported with robust standard errors.		

Table IV(c)			
Comparing Election Effects on Sales vs Producer Taxes ^a			
[t-statistics in parenthesis]			
	Sales Tax	Trade Tax	Excise Tax
Independent Variables:			
Scheduled election year	-1.31 [-0.99]	-1.08 [-2.20]	-1.40 [-2.29]
State domestic product [SDP]	0.01 [3.31]	0.01 [6.79]	0.02 [7.04]
Share of agriculture in SDP	-33.77 [-2.87]	-4.18 [-1.59]	-25.38 [-2.65]
Proportion of rural population	-362.57 [-5.27]	-81.72 [-2.70]	-215.62 [-6.99]
Number of Observations	383	381	394
R-sq	0.89	0.80	0.89
a. All taxes and SDP are in 1973 rupees per capita. Regressions include year and state effects, and are reported with robust standard errors.			

Table V(a)				
Effect of Elections on Capital Spending ^a				
[t-statistics in parenthesis]				
	[1]	[2]	[3]	[4]
Independent Variables:				
Scheduled election year	2.45 [1.58]	2.54 [1.63]		
Midterm election year			-2.47 [-1.96]	-2.68 [-2.07]
State domestic product [SDP]		0.001 [0.41]		0.002 [0.44]
Share of agriculture in SDP		5.91 [0.65]		3.79 [0.44]
Proportion of rural population		-98.29 [-2.05]		-100.39 [-2.08]
Number of Observations	469	407	469	407
R-sq	0.64	0.66	0.64	0.66
a. Capital outlays and SDP are in 1973 rupees per capita. Regressions include state and year effects, and are reported with robust standard errors.				

Table V(b)		
Effect of Elections on Capital Spending ^a		
[t-statistics in parenthesis]		
	[1]	[2]
Independent Variables:		
1 yr before Elections	-0.71	-1.30
	[-0.36]	[-0.70]
2 yrs before Elections	-1.33	-1.75
	[-0.78]	[-1.02]
3 yrs before Elections	-2.43	-3.00
	[-1.40]	[-1.66]
4 yrs before Elections	-3.58	-4.07
	[-1.87]	[-2.12]
State domestic product [SDP]		0.002
		[0.51]
Share of agriculture in SDP		8.34
		[0.90]
Proportion of rural population		-103.58
		[-2.12]
Number of Observations	469	407
R-sq	0.65	0.66
a. Capital outlays and SDP are in 1973 rupees per capita. Include state and year effects, and reported with robust std. errors.		

Table V(c)				
Effect of Elections on Current Spending ^a				
[t-statistics in parenthesis]				
	[1]	[2]	[3]	[4]
Independent Variables:				
Scheduled election year	-3.72	-5.12		
	[-1.27]	[-1.92]		
Midterm Election Year			12.66	10.76
			[1.87]	[1.95]
State domestic product [SDP]		0.08		0.08
		[5.41]		[5.71]
Share of agriculture in SDP		-69.91		-62.03
		[-2.33]		[-1.86]
Proportion of rural population		-444.58		-431.25
		[-2.79]		[-2.70]
Number of Observations	456	394	456	394
R-sq	0.93	0.95	0.93	0.95
a. Current spending and SDP are in 1973 rupees per capita. Regressions include state and year effects, and are reported with robust standard errors.				

Table VI		
Effect of Elections on State Debt ^a		
[t-statistics in parenthesis]		
	[1]	[2]
Independent Variables:		
Scheduled election year	3.59 [1.03]	2.88 [0.93]
State domestic product [SDP]		0.06 [7.43]
Share of agriculture in SDP		-20.35 [-1.35]
Proportion of rural population		116.79 [0.82]
Number of Observations	470	408
R-sq	0.63	0.73
<p>a. State debt and SDP are in 1973 rupees per capita. Regressions include state and year effects, and are reported with robust standard errors.</p>		

Table VII					
Effect of Elections on Road Construction ^a					
[t-statistics in parenthesis]					
	National Highways		State Roads		
Independent Variables ^b :	[1]	[2]	[3]	[4]	[5]
Election year	47.06	61.48			
	[2.22]	[2.21]			
1 yr before Elections			-297.3	-196.4	-314.2
			[-0.33]	[-0.19]	[-0.22]
2 yrs before Elections			-1275.2	-1400.4	-1249.1
			[-1.60]	[-1.52]	[-0.98]
3 yrs before Elections			-239.4	-150.7	-237
			[-0.30]	[-0.16]	[-0.19]
4 yrs before Elections			-1887.8	-1983.6	-2220.3
			[-2.34]	[-2.12]	[-1.70]
Spending on Roads					0.2
					[0.72]
State domestic product [SDP]		0.02		0.7	
		[0.30]		[0.32]	
Share of agriculture in SDP		-170.34		-5613.9	
		[-1.05]		[-1.27]	
Proportion of rural population		115.67		-36047.9	
		[0.10]		[-1.02]	
Number of Observations	318	243	330	308	172
R-sq	0.1611	0.1850	0.2088	0.2328	0.2195
a. State domestic product is in 1973 rupees per capita. Roads lengths are in kilometers.					

Table VII(a)	
Effect of Political Affiliation on National Highways ^a	
1 yr before Elections* Affiliated	-40.36 [-1.30]
2 yrs before Elections* Affiliated	-79.92 [-2.60]
3 yrs before Elections* Affiliated	-33.95 [-1.15]
4 yrs before Elections* Affiliated	-47.88 [-1.41]
1 yr before Elections* Non-affil.	-5.26 [-0.15]
2 yrs before Elections* Non-affil.	-29.93 [-0.81]
3 yrs before Elections* Non-affil.	-14.58 [-0.40]
4 yrs before Elections* Non-affil.	-33.63 [-1.00]
Political Affiliation ^b	-28.90 [-0.90]
Number of Observations	318
R-sq	0.1715
a. Regression includes state and year effects.	
b. Indicator equals 1 if the incumbent is affiliated with the centre.	

Table VIII		
State Roads in Big and Small States ^a		
[t-statistics in parenthesis]		
	[1]	[2]
Independent Variables:		
Election Year*Big	1637.02	1825.07
	[1.86]	[1.93]
Election Year*Small	30.00	233.79
	[0.04]	[0.26]
State domestic product [SDP]		1.01
		[0.46]
Share of agriculture in SDP		-5567.94
		[-1.26]
Proportion of rural population		-34203.37
		[-0.97]
Number of Observations	330	308
R-sq	0.2002	0.2254
a. Big=1 for the 5 largest states, and Small=1 for the 9 smaller states.		
Regressions include state and year effects.		

Figure 1.

S=Scheduled Election

M=Midterm Election

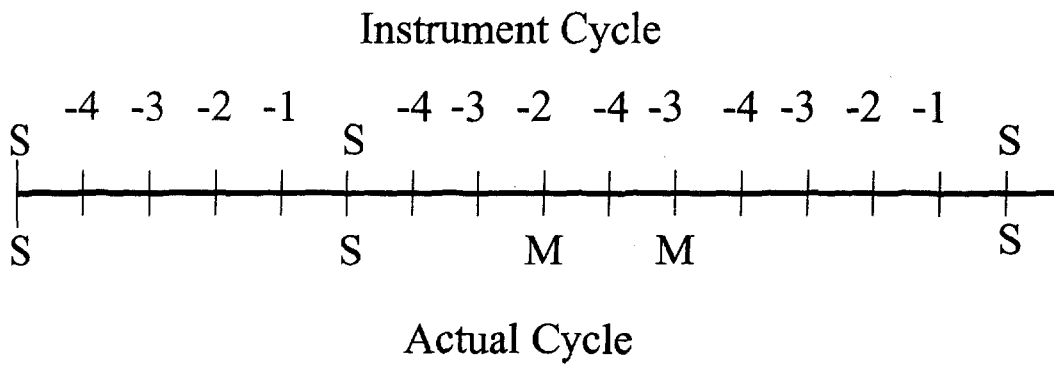


Figure IIa

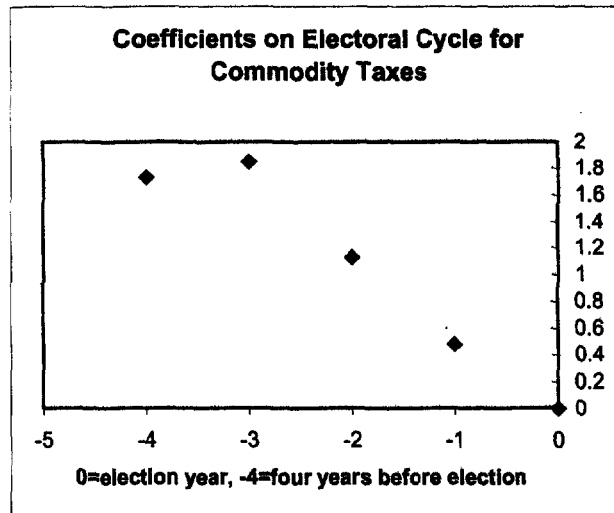


Figure IIb

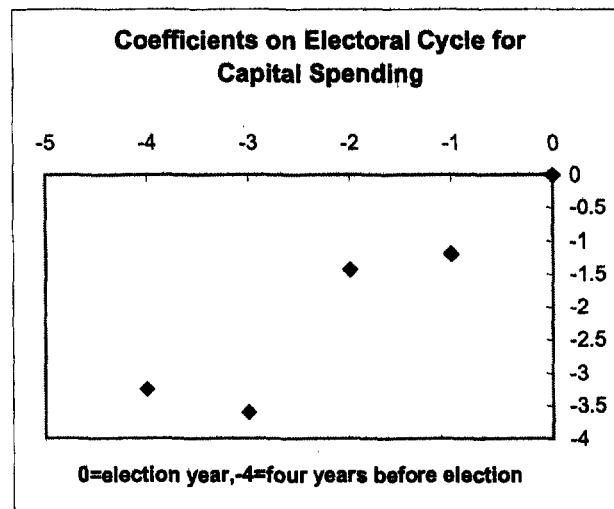
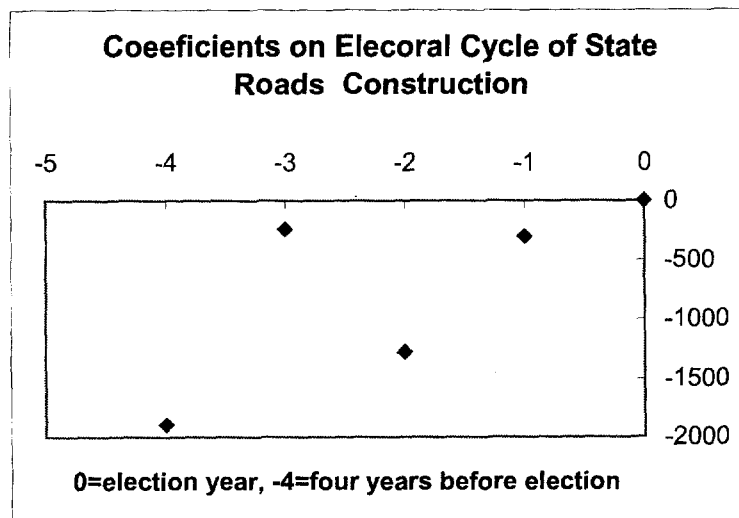
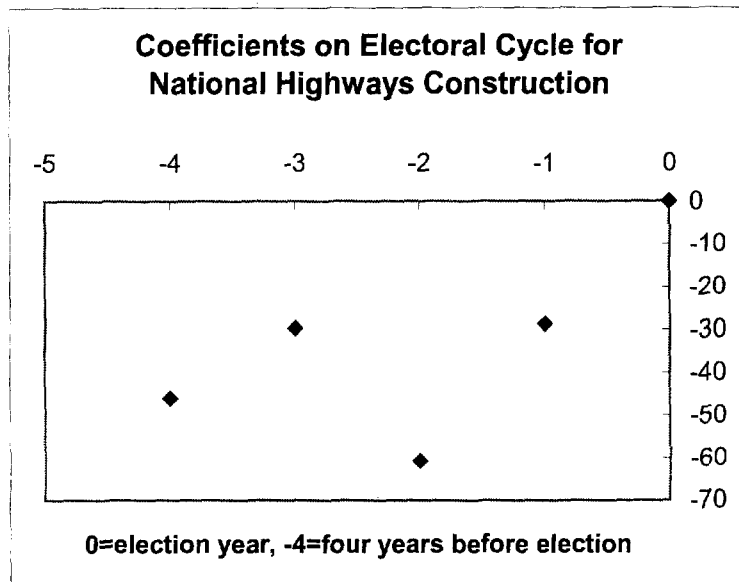


Figure III



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